

SYMMETRY AND WAYWARD NATURE

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Abstract—The author, as a visual artist, stresses the perceptual aspects of symmetry. He discusses the particular qualities of natural patterns and how they relate to our notion of order. Concerning his work, three main lines of approach are detailed: the early landscape paintings of China and the philosophy underlying them, recent developments in our understanding of natural patterns (Mandelbrot), and the use of mirror image reflections. A selection of works are discussed in detail.

INTRODUCTION

The images in this essay represent the outcome of several lines of enquiry—all of which pursue the perceptual aspects of symmetry. I shall concentrate on the early landscape painting of China; recent developments in our understanding of natural patterns [1] and certain aspects of mirror image reflections in an attempt to trace the diverse influences which symmetry has had on my work.

SYMMETRY AND THE ARTIST

As a visual artist, I wish to stress the perceptual aspects of symmetry—how we learn to see before we learn to speak. Our initial encounter with the world is aesthetic: language and mathematics are nets which enable us to capture and objectify experience.

Symmetry is a net that guides our understanding of pattern. It also concerns the discernibility of difference—on a beach of pebbles it is the symmetry of the sea urchin that catches our attention.

In the sensory world, formal symmetry can be broken by the addition of another quality: one half of a symmetrical object can be coloured and this difference would not exist in an abstract formulation of the object.

Symmetry is closely related to our notions of order, so that when we encounter a patch of weeds, flowing water or clouds, our sense of order is challenged, and there is a tendency to describe natural patterns as chaotic or at least asymmetrical.

I would argue that we are encountering a richer kind of order here. This point is taken up by David Bohm in his book: “*Wholeness and the Implicate Order*” [2]. We have tended to define order in terms of predictability, but this may be true only of simple levels of order. Randomness (unpredictability) may be the vital ingredient in the order of complex natural systems.

I arrived at this viewpoint intuitively. To analyse this process is extremely difficult because it involves tacit forms of knowing, which as yet we have no means of formalizing. We recognize patterns whole, not merely as an assemblage of parts. These subjective experiences form the raw material of an artists approach to reality. As the Russian film director Andrei Tarkovsky said:

“The artist breaks down reality in the prism of his perception and uses a foreshortening technique of his own to show different sides of reality.” [3]

Aspects of Symmetry

(1) Chinese landscape painting

My interest in the painting of China and Japan grew out of my encounters with Zen Buddhism and Taoism—of particular interest to me is the period of Sung and Yuan Dynasties (960–1368 A.D.). Painting in this period was particularly influenced by Taoism and Zen Buddhism.

Both philosophies recognized a distinction between human notions of order and natural order—the latter came to be known as Li. Li refers to the randomized order found in flowing water, clouds, trees . . . In fact, the whole conception of nature was radically different in the East. The Chinese term for nature is Tzu-Jan, which means “of itself so”, a process which happens



Fig. 1. *Sung Landscape.*

spontaneously, not one that is driven by outside forces. Here, then, was the philosophical basis for a type of painting that embraced the waywardness of nature as representing a deeper level of order akin to that proposed earlier.

In the paintings, themselves, we discover that the transient effects of time and place are sacrificed to reveal underlying formative principles. Natural pattern is seen as a manifestation of Tao—the Way; or in more modern terms an aspect of the global properties of the universe. This landscape painting became the major vehicle for the communication of these views. How was this achieved? Colour was largely eliminated, and form and space came to dominate the images. Individual forms were built up from simple abstract units: brush-strokes, dots and washes of black ink. Larger units, such as mountains, we built up from aggregates of small forms in a molecular fashion.

Chinese painters were the first to make systematic use of controlled accidents: ink splashes, ink spreading on wet paper or silk, and the random qualities of dry brush. These techniques provided a direct means of bringing Li (natural order) into their work.

Figure 1 represents my attempt to recreate a Northern Sung landscape in order to experience this way of seeing from the inside. It is, of course, a Westernized approach, since I am not a master of Oriental brushwork. It was painted on raw silk, using Chinese ink and a few washes of earth colour. It contains the classical elements: trees, waterfalls, mountains and a temple. It is painted in the method outlined above.

(2) New developments in the study of patterns in nature

The study of natural pattern in the West has been fragmentary until fairly recently. There are a few classics [4]; but much of the material was scattered in journals. The development of computers, and especially computer graphics, has created renewed interest. Abstract mathematical ideas could now be given visual form.

Figure 2 *Space Seed* grew out of my collaboration with Robert Dixon. We were both fascinated by patterns such as the sunflower and ripples on water. Robert Dixon, having solved the basic geometry, went on to realize a number of these patterns as computer graphics. I was more

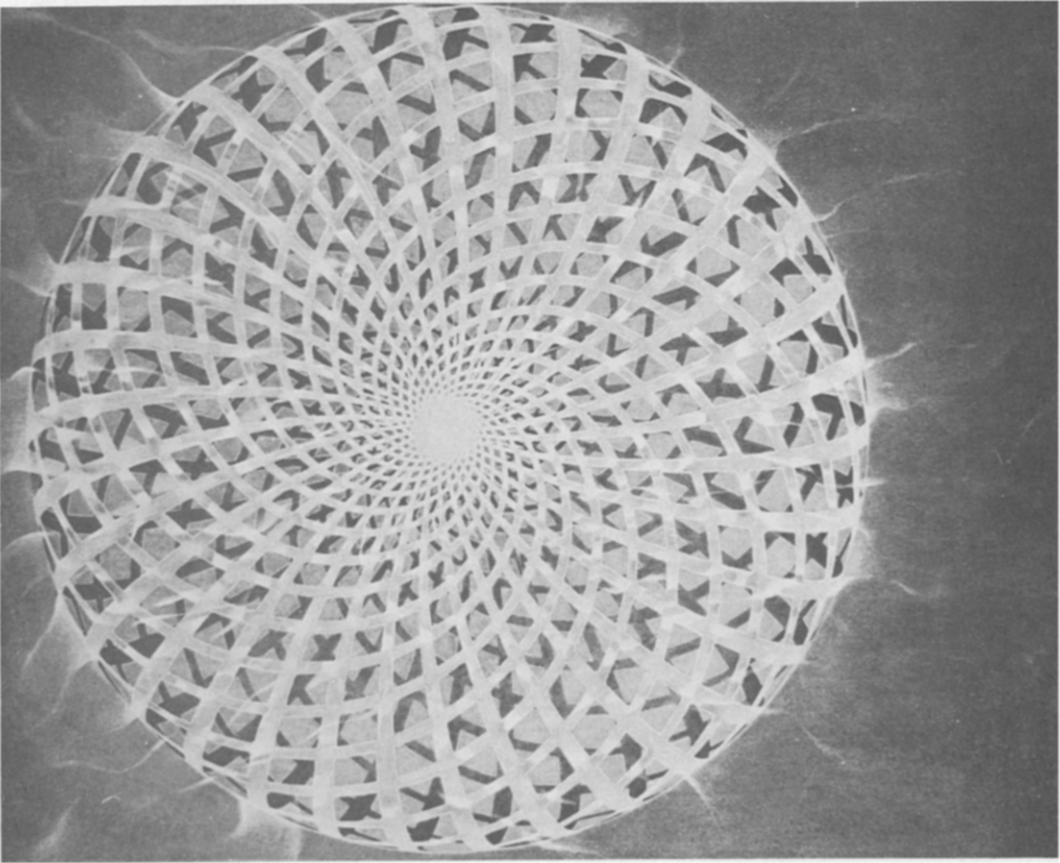


Fig. 2. *Space Seed.*

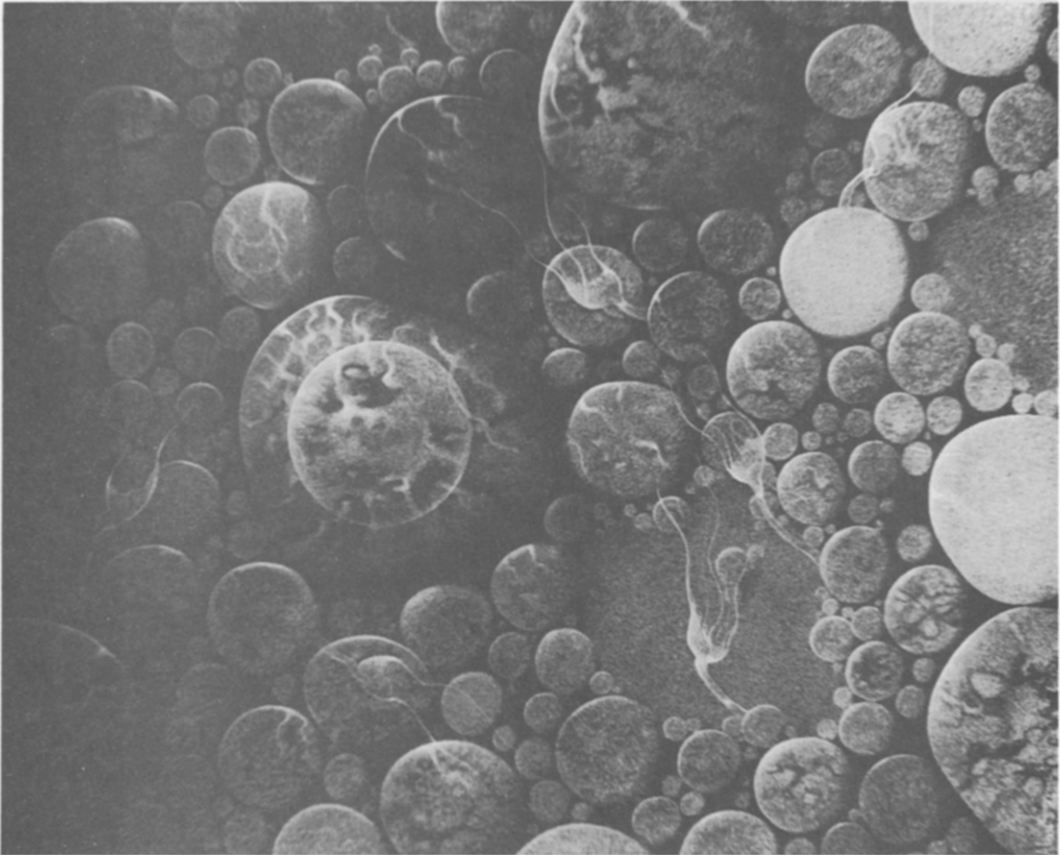


Fig. 3. *Moonstone.*

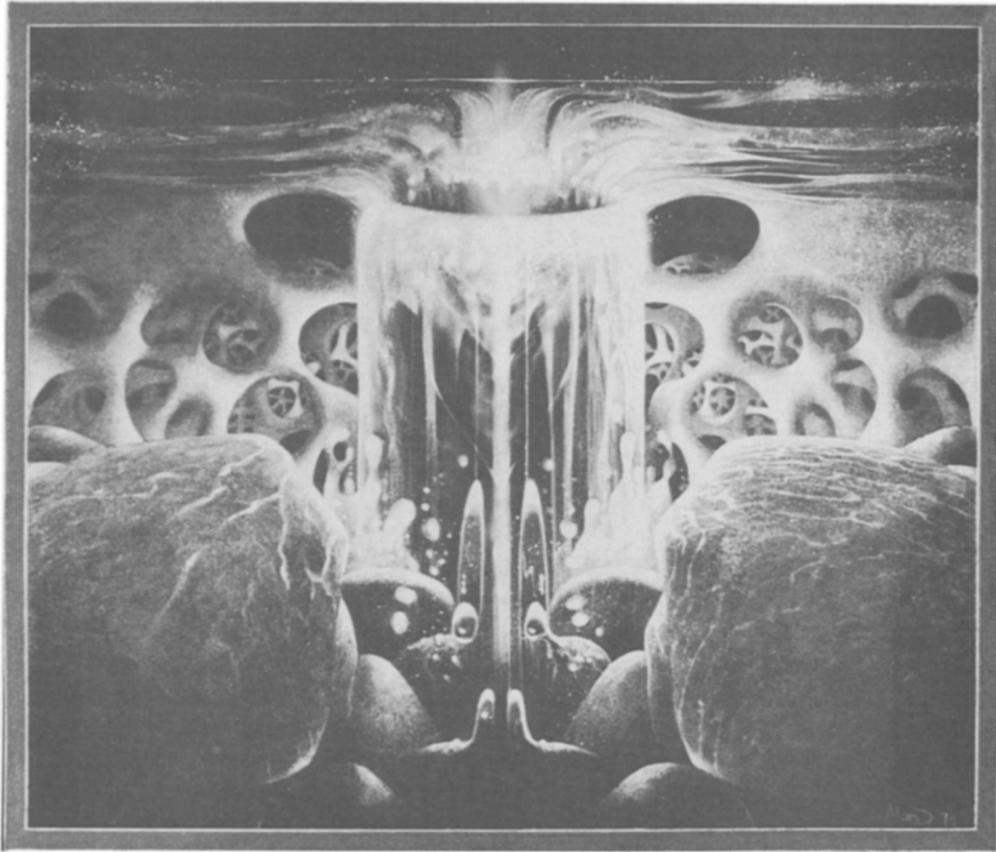


Fig. 4. *Still Point*.

concerned with relating these experiments to the more wayward examples to be found in nature (real sunflowers, real organisms). I took one of these basic patterns and treated the image imaginatively as if it were a micro-organism, injecting random effects of texture and light. It became an improbable diatom.

Figure 3 *Moonstone* was inspired by an image of Mandelbrot called an *Apollonian Gasket*—a two-dimensional image formed by the packing of scaled circles. I introduced broken symmetries, spaces, and then created a sense of texture by the multiple applications of randomized paint. The original image contains many interacting colours—cool at the top, moving to warm at the bottom. The image grew into an imaginative rockpool with a reflected moon—partly real, partly abstract.

(3) *Mirror-image symmetry*

Several of the paintings illustrated contain mirror-image reflections. My interest in such obvious examples of symmetry relates to my interest in pattern generally. Images with a dominant central axis have a particularly powerful effect on the observer; it challenges the widely held notion that key elements be placed off centre in a composition. The viewers intent is focussed by the sense of completion, of other worldliness. It looks real but it cannot be, the real world is open and changing.

Figure 4 *Still Point* contains a mirror image. The title refers to the state experienced in meditation—when the mind ceases to chatter and a magical stillness ensues. The image uses the metaphor of a water splash suspended in time to represent this state.

Each side of the image has slightly different qualities of light and texture. It stands on the borderline between the real and the abstract.

Figure 5 *Mind and Nature II*. The tree is placed at the centre like an icon. It contains a mirror image formed by reflecting the asymmetrical parts of the tree as a silhouette. I wanted the tree to take on some of the aspects of one of those many armed Hindu figures—an image of the power

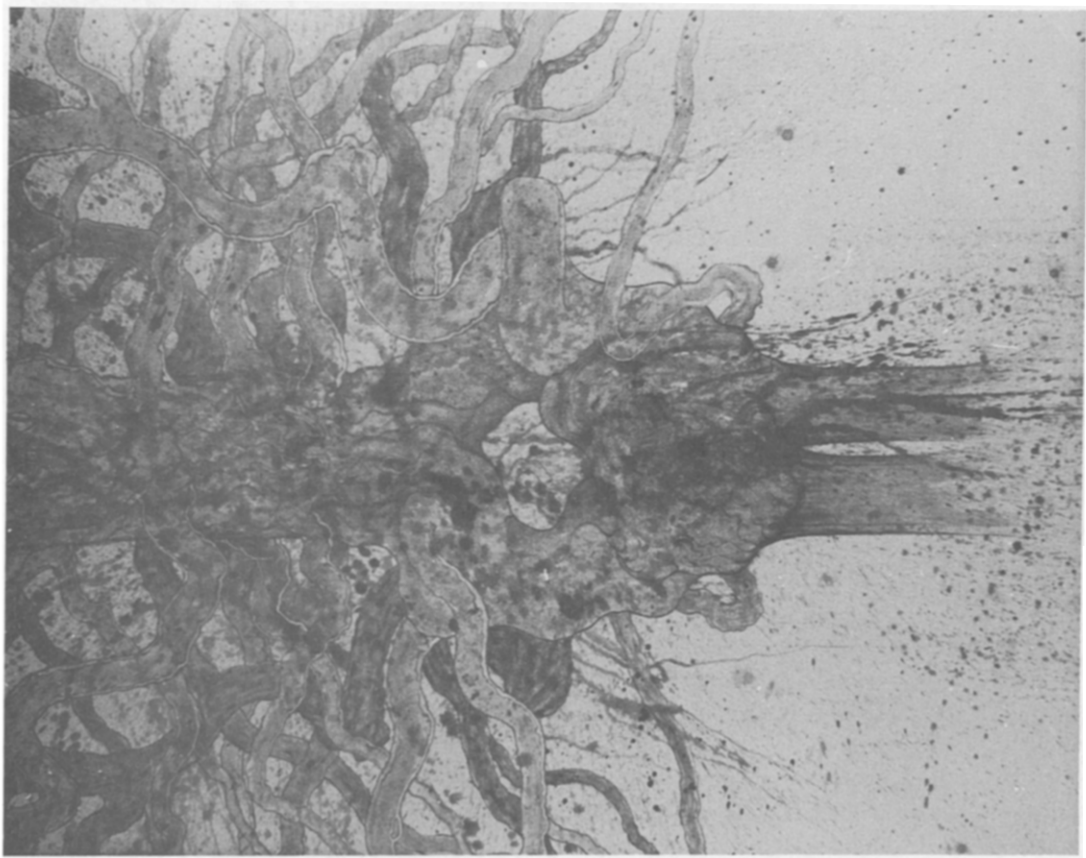


Fig. 5. *Mind and Nature II.*

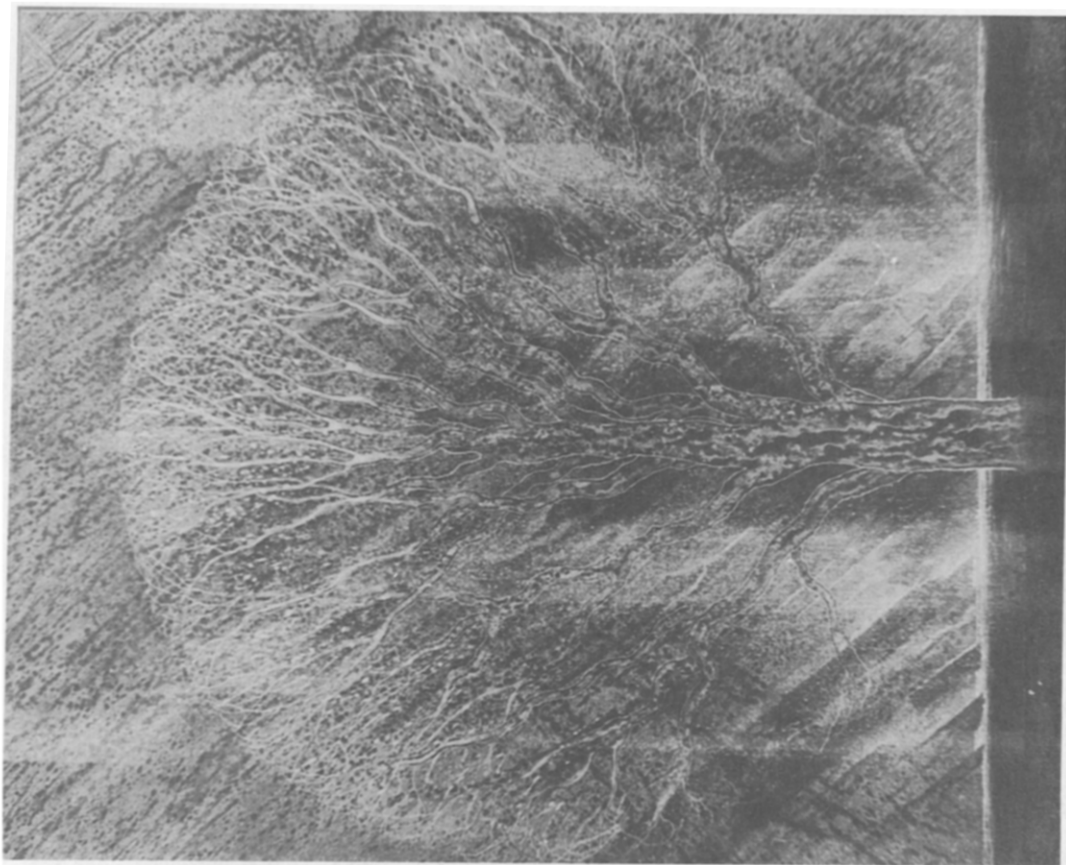


Fig. 6. *The Watercourse Way.*



Fig. 7. *Insight II*.

of nature. The painting is carried out in a loose manner in contradiction to the ordered drawing, the stillness of the drawing fragmented by the energy of the paint.

ATTEMPTING TO INTEGRATE VARIOUS APPROACHES

Many of my painting are a fusion of the approaches outlined above.

Figure 6 *The Watercourse Way*. The title derived from the Taoist conception of nature as following its own way—Tzu-Jan. The image grows from the tacit recognition of self-similarity: in nature the branching of trees resembles the branching of water. The tree is an imaginary creation of branching limited by a circle which completes it. A waterfall cascades down behind. The whole image is imbued with energy—energy which is mutable; it moves through everything appearing here as a tree or there as water.

Figure 7 *Insight II*. The magical patterns of light in moving water, a small corner of nature which points to a wider truth: everything is process. What we take to be solid, immutable is also changing—we are like ripples in a stream. In observing natural patterns we never encounter aesthetic mistakes—it and just as “of itself so”, it is its own measure.

Figure 8 *Memory Traces*. Within a small corner of the world: a group of pebbles, a leaf, a twig and a breeze—interactive patterns emerge. Patterns of flow permeate everything—frozen in the pebbles or moving in the breeze.

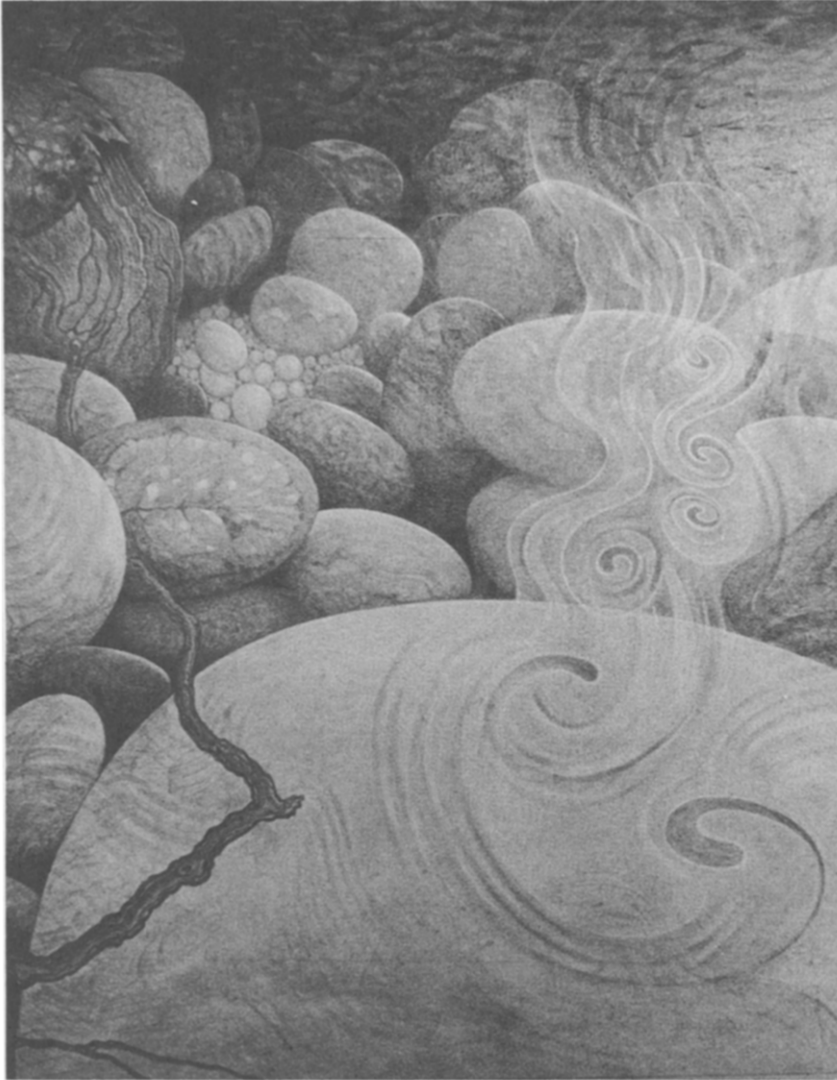


Fig. 8. *Memory Traces*.

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